CLAIMS

What is claimed is:

1. An automated method of classifying a cytological sample comprising:

providing a cytological sample in solution in a vessel;

optically interrogating the solution with at least one wavelength of light;

comparing a result of said interrogation to a criterion;

attaching a positive designator to the sample if the result meets the criterion; and

attaching a manipulation designator to the sample if the result does not meet the criterion.

2. The method of claim 1, wherein the positive designator designates the sample as satisfactory for performing an intended assay.

3. The method of claim 1, wherein the intended assay comprises preparing a slide from said sample.

4. The method of claim 3, wherein the sample is satisfactory if it contains sufficient cells.

5. The method of claim 4, wherein the cells are of a desired type.

6. The method of claim 1, wherein the positive designator designates the sample as satisfactory for automated slide preparation.

7. The method of claim 1, wherein the positive designator designates the sample as adequate to allow withdrawal of a portion of the sample prior to performing an intended assay.

8. The method of claim 1, wherein the manipulation designator designates the acquisition of an additional sample.

9. The method of claim 1, wherein the manipulation designator designates a treatment of the sample.

10. The method of claim 9, wherein the treatment comprises adding acetic acid to the sample.

11. The method of claim 9, wherein the treatment comprises adding a reducing agent to the sample.

12. The method of claim 1, wherein the criterion indicates a concentration of cells in the sample.

13. The method of claim 1, wherein the criterion indicates a concentration of cells of a particular type in the sample.

14. The method of claim 13, wherein the cells are endocervical cells.

15. The method of claim 1, wherein the criterion indicates a level of mucus in the sample.

16. The method of claim 1, wherein the criterion indicates a level of blood in the sample.

17. The method of claim 1, wherein the criterion indicates a level of blood in the sample.

18. The method of claim 1, wherein the sample is mixed prior to optically interrogating the solution.

19. The method of claim 17, wherein the mixing is manual.

20. The method of claim 17, wherein the mixing is automated.

21. The method of claim 1, wherein the positive designator comprises a marking on the vessel.

22. The method of claim 1, wherein the positive designator comprises a designation in an electronic memory.

23. The method of claim 1, wherein the manipulation designator comprises a marking on the vessel.

24. The method of claim 1, wherein the manipulation designator comprises a designation in an electronic memory.

25. The method of claim 1, wherein the method is performed in temporal conjunction with obtaining the sample from a subject.

26. The method of claim 24, wherein the method is performed prior to the subject leaving the point of sampling.

27. The method of claim 1, further comprising preparing a slide from the sample after removing said portion.

28. The method of claim 1, wherein the sample is selected from the group consisting of blood; urine; semen; milk; sputum; mucus; plueral fluid; pelvic fluid; sinovial fluid; ascites fluid; a body cavity wash; eye brushing; skin scrapings; a buccal swab; a vaginal swab; a pap smear; a rectal swab; an aspirate; a needle biopsy; a section of tissue; plasma; serum; spinal fluid; lymph fluid; an external secretion of the skin, respiratory, intestinal, or genitourinary tract; tears; saliva; a tumor; an organ; a microbial culture; and an *in vitro* cell culture constituent.

29. The method of claim 1, wherein the sample comprises a water-soluble alcohol in an amount effective to preserve the sterility of the solution toward at least one contaminant.